

WO 00/40614

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SEQUENCE LISTING

<110> Beth Israel Deaconess Medical Center, Inc.
 Scharenberg, Andrew

<120> CHARACTERIZATION OF A CALCIUM CHANNEL FAMILY

<130> B0662/7026WO/ERP/KA

<150> U.S. 60/114,220

<151> 1998-12-30

<150> U.S. 60/120,018

<151> 1999-01-29

<150> U.S. 60/140,415

<151> 1999-06-22

<160> 32

<170> FastSEQ for Windows Version 3.0

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<212> DNA

<213> Homo Sapiens

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<212> PRT

<213> Homo Sapiens

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sub B'

B

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65					70					75					80
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Ser	Lys	Gln	Glu	Lys	Ile	Ser	Arg	Arg	Pro	Ser	Thr	Glu	Asp	Thr	His
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			20					25					30		
Phe	Leu	Gln	Ala	Val	Tyr	Leu	Phe	Xaa	Gln	Tyr	Ile	Ile	Met	Val	Asn
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Leu	Leu	Ile	Ala	Phe	Xaa	Asn	Val	Tyr	Leu	Gln	Val	Lys	Ala	Ile	
	50					55				60					
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His	Glu	Lys	Pro	Val	Leu	Pro	Pro	Pro	Leu	Ile	Ile	Leu	Ser	His	Ile
				85					90					95	
Val	Ser	Leu	Phe	Cys	Cys	Ile	Cys	Lys	Arg	Arg	Lys	Lys	Asp	Lys	Thr
			100					105					110		
Ser	Asp	Gly	Pro	Lys	Leu	Phe	Leu	Thr	Glu	Glu	Asp	Gln	Lys	Lys	Leu
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Arg	Val	Glu	Gln	Met	Cys	Ile	Gln	Ile	Lys	Glu	Val	Gly	Asp	Pro	Cys
				165					170					175	
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Trp	Pro	Lys	Ala	Ser	Glu	Ala	Ser	Lys	Val	His	Asn	Glu	Ile	Thr	Arg
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 cttggaaact ggaaccaaag atcaagaaac tgtttgctct aaagctacag aaggagataa 480
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gtcacttttg	aaagagtggg	gcagatgagc	attcagatta	aagaagttgg	agatcgtgtc	300
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<211> 1503

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<212> PRT

<213> Homo Sapiens

<400> 12

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Leu	Arg	Arg	Ser	Asn	Ser	Ser	Leu	Phe	Lys	Ser	Trp	Arg	Leu	Gln	Cys
			35				40					45			
Pro	Phe	Gly	Asn	Asn	Asp	Lys	Gln	Glu	Ser	Leu	Ser	Ser	Trp	Ile	Pro
			50			55					60				
Glu	Asn	Ile	Lys	Lys	Lys	Glu	Cys	Val	Tyr	Phe	Val	Glu	Ser	Ser	Lys
65					70					75					80
Leu	Ser	Asp	Ala	Gly	Lys	Val	Val	Cys	Gln	Cys	Gly	Tyr	Thr	His	Glu
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Gln	His	Leu	Glu	Glu	Ala	Thr	Lys	Pro	His	Thr	Phe	Gln	Gly	Thr	Gln
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Trp	Asp	Pro	Lys	Lys	His	Val	Gln	Glu	Met	Pro	Thr	Asp	Ala	Phe	Gly
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Asp	Ile	Val	Phe	Thr	Gly	Leu	Ser	Gln	Lys	Val	Lys	Lys	Tyr	Val	Arg
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Val	Ser	Gln	Asp	Thr	Pro	Ser	Ser	Val	Ile	Tyr	His	Leu	Met	Thr	Gln
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His	Trp	Gly	Leu	Asp	Val	Pro	Asn	Leu	Leu	Ile	Ser	Val	Thr	Gly	Gly
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Ala	Lys	Asn	Phe	Asn	Met	Lys	Pro	Arg	Leu	Lys	Ser	Ile	Phe	Arg	Arg
			180					185					190		
Gly	Leu	Val	Lys	Val	Ala	Gln	Thr	Thr	Gly	Ala	Trp	Ile	Ile	Thr	Gly
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Gly	Ser	His	Thr	Gly	Val	Met	Lys	Gln	Val	Gly	Glu	Ala	Val	Arg	Asp
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Phe	Ser	Leu	Ser	Ser	Ser	Tyr	Lys	Glu	Gly	Glu	Leu	Ile	Thr	Ile	Gly
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Val	Ala	Thr	Trp	Gly	Thr	Val	His	Arg	Arg	Glu	Gly	Leu	Ile	His	Pro
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Thr	Gly	Ser	Phe	Pro	Ala	Glu	Tyr	Ile	Leu	Asp	Glu	Asp	Gly	Gln	Gly
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Asn	Leu	Thr	Cys	Leu	Asp	Ser	Asn	His	Ser	His	Phe	Ile	Leu	Val	Asp
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Asp	Gly	Thr	His	Gly	Gln	Tyr	Gly	Val	Glu	Ile	Pro	Leu	Arg	Thr	Arg
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Ile	Lys	Ile	Pro	Ile	Val	Cys	Val	Val	Leu	Glu	Gly	Gly	Pro	Gly	Thr
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Leu	Pro	Val	Ser	Asp	Ile	Thr	Ile	Ser	Leu	Ile	Gln	Gln	Lys	Leu	Ser
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Val	Phe	Phe	Gln	Glu	Met	Phe	Glu	Thr	Phe	Thr	Glu	Ser	Arg	Ile	Val
385					390					395					400
Glu	Trp	Thr	Lys	Lys	Ile	Gln	Asp	Ile	Val	Arg	Arg	Arg	Gln	Leu	Leu
				405					410					415	
Thr	Val	Phe	Arg	Glu	Gly	Lys	Asp	Gly	Gln	Gln	Asp	Val	Asp	Val	Ala
			420					425					430		
Ile	Leu	Gln	Ala	Leu	Leu	Lys	Ala	Ser	Arg	Ser	Gln	Asp	His	Phe	Gly
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Val	Asp	Ile	Ala	Arg	Ser	Glu	Ile	Phe	Met	Asp	Glu	Trp	Gln	Trp	Lys
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Pro	Ser	Asp	Leu	His	Pro	Thr	Met	Thr	Ala	Ala	Leu	Ile	Ser	Asn	Lys
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Pro	Glu	Phe	Val	Lys	Leu	Phe	Leu	Glu	Asn	Gly	Val	Gln	Leu	Lys	Glu
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Phe	Val	Thr	Trp	Asp	Thr	Leu	Leu	Tyr	Leu	Tyr	Glu	Asn	Leu	Asp	Pro
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Ser	Cys	Leu	Phe	His	Ser	Lys	Leu	Gln	Lys	Val	Leu	Val	Glu	Asp	Pro
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Glu	Arg	Pro	Ala	Cys	Ala	Pro	Ala	Ala	Pro	Arg	Leu	Gln	Met	His	His
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Val	Ala	Gln	Val	Leu	Arg	Glu	Leu	Leu	Gly	Asp	Phe	Thr	Gln	Pro	Leu
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Tyr	Pro	Arg	Pro	Arg	His	Asn	Asp	Arg	Leu	Arg	Leu	Leu	Leu	Pro	Val
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Pro	His	Val	Lys	Leu	Asn	Val	Gln	Gly	Val	Ser	Leu	Arg	Ser	Leu	Tyr
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 Arg Arg Val Asp Trp Leu Phe Arg Gly Ala Val Tyr His Ser Tyr Leu
 965 970 975
 Thr Ile Phe Gly Gln Ile Pro Gly Tyr Ile Asp Gly Val Asn Phe Asn
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 Pro Glu His Cys Ser Pro Asn Gly Thr Asp Pro Tyr Lys Pro Lys Cys
 995 1000 1005
 Pro Glu Ser Asp Ala Thr Gln Gln Arg Pro Ala Phe Pro Glu Trp Leu
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 Ser Gly Phe Ser Ser Glu Ala Asp Val Pro Thr Leu Ala Ser Gln Lys
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 Ser Thr Ile Gln Tyr Asn Val Val Asp Gly Leu Arg Asp Arg Arg Ser
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 Phe His Gly Pro Tyr Thr Val Gln Ala Gly Leu Pro Leu Asn Pro Met
 1315 1320 1325
 Gly Arg Thr Gly Leu Arg Gly Arg Gly Ser Leu Ser Cys Phe Gly Pro
 1330 1335 1340
 Asn His Thr Leu Tyr Pro Met Val Thr Arg Trp Arg Arg Asn Glu Asp
 1345 1350 1355 136
 Gly Ala Ile Cys Arg Lys Ser Ile Lys Lys Met Leu Glu Val Leu Val
 1365 1370 1375
 Val Lys Leu Pro Leu Ser Glu His Trp Ala Leu Pro Gly Gly Ser Arg
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 Glu Pro Gly Glu Met Leu Pro Arg Lys Leu Lys Arg Ile Leu Arg Gln
 1395 1400 1405

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Glu	His	Trp	Pro	Ser	Phe	Glu	Asn	Leu	Leu	Lys	Cys	Gly	Met	Glu	Val
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Glu	Thr	Val	Ala	Val	Ser	Val	His	Phe	Gln	Asp	Gln	Asn	Asp	Val	Glu
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Ile	Arg	Trp	Gln	Val	Val	Asp	Arg	Arg	Ile	Pro	Leu	Tyr	Ala	Asn	His
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Leu	Phe	Phe	Thr	Gln	Phe	Phe	Met	Phe	Gln	Leu	Ser	Ser	Met	Ala	Tyr
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Lys	Leu	Leu	Gly	Lys	Ser	Glu	Asn	Leu	Asp	His	Arg	Tyr	Gln	Ser	Ser
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Glu	Gln	Lys	Val	Leu	Ile	Glu	Trp	Thr	Glu	Asn	Lys	Ala	Val	Ala	Glu
				85					90					95	
Ser	Leu	Arg	Ala	Asn	Ser	Val	Thr	Val	Glu	Glu	Asn	Glu	Ser	Glu	Arg
			100					105					110		
Glu	Thr	Glu	Thr	Gln	Thr	Lys	Arg	Arg	Arg	Lys	Lys	Gln	Arg	Ser	Thr
	115					120						125			
Ser	Ser	Asp	Lys	Ala	Pro	Leu	Asn	Ser	Ala	Pro	Arg	His	Val	Gln	Lys
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Phe	Asp	Trp	Lys	Asp	Met	Leu	His	Leu	Ala	Asp	Ile	Ser	Gly	Arg	Lys
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Arg	Gly	Asn	Ser	Thr	Thr	Ser	His	Ser	Gly	His	Ala	Thr	Arg	Ala	Gly
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Ser	Leu	Lys	Gly	Lys	Asn	Trp	Ile	Glu	Cys	Arg	Leu	Lys	Met	Arg	Gln
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Cys	Ser	Tyr	Phe	Val	Pro	Ser	Gln	Arg	Phe	Ser	Glu	Arg	Cys	Gly	Cys
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Gly	Lys	Glu	Arg	Ser	Lys	His	Thr	Glu	Glu	Val	Leu	Glu	Arg	Ser	Gln
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Asn	Lys	Asn	His	Pro	Leu	Asn	His	Leu	Thr	Leu	Pro	Gly	Ile	His	Glu
225					230					235					240
Val	Asp	Thr	Thr	Asp	Ala	Asp	Ala	Asp	Asp	Asn	Glu	Val	Asn	Leu	Thr
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Pro	Gly	Arg	Trp	Ser	Ile	Gln	Ser	His	Thr	Glu	Ile	Val	Pro	Thr	Asp
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Ala	Tyr	Gly	Asn	Ile	Val	Phe	Glu	Gly	Thr	Ala	His	His	Ala	Gln	Tyr
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Ala	Arg	Ile	Ser	Phe	Asp	Ser	Asp	Pro	Arg	Asp	Ile	Val	His	Leu	Met
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305					310					315					320
Gly	Gly	Leu	Thr	Lys	Phe	Asp	Leu	Gln	Pro	Lys	Leu	Ala	Arg	Thr	Phe

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Thr	Ser	Gly	Leu	Asp	Glu	Gly	Val	Val	Lys	His	Leu	Asp	Ser	Ala	Leu		
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His	Ala	Leu	Glu	Phe	Trp	Ser	Phe	Gly	Leu	Phe	Trp	Val	Ile	Gln	Leu		
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Asp	Val	Leu	Leu	Ala	His	Ser	Met	Phe	Ile	Pro	Arg	Gly	Ser	Leu	Phe		
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Asp	His	Gly	Asn	His	Thr	Ser	Lys	Asn	His	Val	Val	Ala	Ile	Gly	Ile		
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Ala	Ser	Trp	Gly	Met	Leu	Lys	Gln	Arg	Ser	Arg	Phe	Val	Gly	Lys	Asp		
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Ser	Thr	Val	Thr	Tyr	Ala	Thr	Asn	Val	Phe	Asn	Asn	Thr	Arg	Leu	Lys		
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Glu	Leu	Asn	Asp	Asn	His	Ser	Tyr	Phe	Leu	Phe	Ser	Asp	Asn	Gly	Thr		
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Val	Asn	Arg	Tyr	Gly	Ala	Glu	Ile	Ile	Met	Arg	Lys	Arg	Leu	Glu	Ala		
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Tyr	Leu	Ala	Gln	Gly	Asp	Lys	Lys	Arg	Ser	Ala	Ile	Pro	Leu	Val	Cys		
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Val	Thr	Thr	Ile	Pro	Arg	Ile	Pro	Val	Ile	Val	Cys	Asp	Gly	Ser	Gly		
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Arg	Ala	Ala	Asp	Ile	Leu	Ala	Phe	Ala	His	Gln	Ala	Val	Ser	Gln	Asn		
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Gly	Phe	Leu	Ser	Asp	Asn	Ile	Arg	Asn	Gln	Leu	Val	Asn	Ile	Val	Arg		
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Arg	Ile	Phe	Gly	Tyr	Asp	Pro	Lys	Thr	Ala	Gln	Lys	Leu	Ile	Lys	Gln		
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Gly	Glu	Ser	Ser	Arg	Glu	Asp	Leu	Asp	His	Val	Ile	Met	Ser	Cys	Leu		
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Leu	Lys	Gly	Gln	Asn	Leu	Ser	Pro	Pro	Glu	Gln	Leu	Gln	Leu	Ala	Leu		
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Ala	Trp	Asn	Arg	Ala	Asp	Ile	Ala	Arg	Thr	Glu	Ile	Phe	Ala	Asn	Gly		
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Thr	Asp	Lys	Gly	Pro	Gln	Asn	Thr	Leu	Arg	Thr	Asn	Leu	Leu	Val	Asp		
	690					695					700						
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Leu	Met	Gly	Asn	Leu	Tyr	Lys	Ser	Asn	Tyr	Thr	Lys	Glu	Glu	Phe	Lys		
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Asp	Ala	Gly	Arg	Glu	Arg	Met	Ser	Ser	Met	Gln	Ile	Ser	Leu	Ile	Asn		
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Asn	Ala	Arg	Asn	Ser	Ile	Ile	Ser	Leu	Phe	Asn	Gly	Gly	Gly	Arg	Lys		
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Arg	Glu	Ser	Asp	Asp	Glu	Asp	Asp	Phe	Ser	Asn	Leu	Glu	Glu	Glu	Ala		

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Ala	Val	Leu	Thr	Lys	Arg	Gln	Lys	Met	Ala	Lys	Leu	Met	Trp	Thr	His	
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Gly	Glu	Glu	Gly	Met	Ala	Lys	Ala	Leu	Val	Ala	Ser	Arg	Leu	Tyr	Val	
	850					855					860					
Ser	Leu	Ala	Lys	Thr	Ala	Ser	Leu	Ala	Thr	Gly	Glu	Ile	Gly	Met	Ser	
865					870					875				880		
Gln	Asp	Phe	Thr	Glu	Phe	Ser	Asp	Glu	Phe	Ser	Glu	Leu	Ala	Val	Glu	
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Val	Leu	Glu	Tyr	Cys	Thr	Lys	His	Gly	Arg	Asp	Gln	Thr	Leu	Arg	Leu	
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Leu	Thr	Cys	Glu	Leu	Ala	Asn	Trp	Gly	Asp	Glu	Thr	Cys	Leu	Ser	Leu	
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Ala	Ala	Asn	Asn	Gly	His	Arg	Lys	Phe	Leu	Ala	His	Pro	Cys	Cys	Gln	
	930					935					940					
Met	Leu	Leu	Ser	Asp	Leu	Trp	Gln	Gly	Gly	Leu	Leu	Met	Lys	Asn	Asn	
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Gln	Asn	Ser	Lys	Val	Leu	Thr	Cys	Leu	Ala	Pro	Pro	Leu	Ile	Phe		
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Leu	Leu	Gly	Phe	Lys	Thr	Lys	Glu	Gln	Leu	Met	Leu	Gln	Pro	Lys	Thr	
		980						985					990			
Ala	Ala	Glu	His	Asp	Glu	Glu	Met	Ser	Asp	Ser	Glu	Met	Asn	Ser	Ala	
	995						1000					1005				
Glu	Asp	Thr	Asp	Thr	Ser	Ser	Asp	Ser	Ser	Ser	Asp	Ser	Asp	Asp	Ser	
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Asp	Glu	Glu	Asp	Ala	Lys	Leu	Arg	Ala	Gln	Ser	Leu	Ser	Ala	Asp	Gln	
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Pro	Leu	Ser	Ile	His	Arg	Leu	Val	Arg	Asp	Lys	Leu	Asn	Phe	Ser	Glu	
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Lys	Lys	Lys	Pro	Asp	Met	Gly	Ile	Ser	Arg	Ile	Val	Val	Ala	Pro	Pro	
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Ile	Val	Thr	Gly	Arg	Asn	Arg	Ala	Arg	Thr	Met	Ser	Ile	Lys	Lys	Ser	
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Lys	Arg	Gly	Ser	Val	Ala	Val	Ala	Met	Asn	His	Asp	Asp	Met	Tyr	Ile	
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Asp	Pro	Ser	Glu	Glu	Leu	Asp	Thr	Gln	Thr	Arg	Gln	Lys	Ser	Ser	Arg	
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Glu	Phe	Ser	Ser	Ser	Arg	Asn	Val	Thr	Val	Gln	Val	Tyr	Thr	Gln	Arg	
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Pro	Leu	Ser	Trp	Lys	Lys	Lys	Ile	Met	Glu	Phe	Tyr	Lys	Ala	Pro	Ile	
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Thr	Thr	Tyr	Trp	Leu	Trp	Phe	Phe	Ala	Phe	Ile	Trp	Phe	Leu	Ile	Leu	
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Leu	Thr	Tyr	Asn	Leu	Leu	Val	Lys	Thr	Gln	Arg	Ile	Ala	Ser	Trp	Ser	
			1220					1225					1230			
Glu	Trp	Tyr	Val	Phe	Ala	Tyr	Ile	Phe	Val	Trp	Thr	Leu	Glu	Ile	Gly	
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Lys	Gln	Leu	Arg	Val	Phe	Phe	Phe	Gln	Tyr	Arg	Asn	Gly	Leu	Leu	Ala	
1265					1270					1275				128		
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Thr	Thr	Lys	Thr	Leu	Gly	Arg	Ile	Leu	Ile	Ile	Cys	Asn	Ser	Val	Ile			
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Trp	Ser	Leu	Lys	Leu	Val	Asp	Tyr	Leu	Ser	Val	Gln	Gln	Gly	Leu	Gly			
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Pro	Tyr	Ile	Asn	Ile	Val	Ala	Glu	Met	Ile	Pro	Thr	Met	Ile	Pro	Leu			
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Cys	Val	Leu	Val	Phe	Ile	Thr	Leu	Tyr	Ala	Phe	Gly	Leu	Leu	Arg	Gln			
1345			1350			1355			1360			1365			1370			
Ser	Ile	Thr	Tyr	Pro	Tyr	Glu	Asp	Trp	His	Trp	Ile	Leu	Val	Arg	Asn			
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Ile	Phe	Leu	Gln	Pro	Tyr	Phe	Met	Leu	Tyr	Gly	Glu	Val	Tyr	Ala	Ala			
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Glu	Ile	Asp	Thr	Cys	Gly	Asp	Glu	Ile	Trp	Gln	Thr	His	Glu	Asp	Glu			
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Asn	Ile	Pro	Ile	Ser	Met	Leu	Asn	Val	Thr	His	Glu	Thr	Cys	Val	Pro			
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Gly	Tyr	Trp	Ile	Ala	Pro	Val	Gly	Leu	Thr	Val	Phe	Met	Leu	Ala	Thr			
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Asn	Val	Leu	Leu	Met	Asn	Val	Met	Val	Ala	Gly	Cys	Thr	Tyr	Ile	Phe			
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Glu	Lys	His	Ile	Gln	Ser	Thr	Arg	Glu	Ile	Phe	Leu	Phe	Glu	Arg	Tyr			
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Gly	Gln	Val	Met	Glu	Tyr	Glu	Ser	Thr	Pro	Trp	Leu	Pro	Pro	Pro	Phe			
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Thr	Ile	Ile	Tyr	His	Val	Ile	Trp	Leu	Phe	Lys	Leu	Ile	Lys	Ser	Ser			
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Phe	Leu	Ser	Pro	Asp	Glu	Met	Glu	Lys	Val	His	Thr	Phe	Glu	Glu	Glu			
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Ser	Val	Glu	Asp	Met	Lys	Arg	Glu	Thr	Glu	Lys	Lys	Asn	Leu	Ser	Ser			
			1540			1545			1550									
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1555			1560			1565			1570			1575			1580			
Asn	Arg	Val	Ser	His	Leu	Thr	Gln	Leu	Glu	Phe	Thr	Leu	Lys	Glu	Glu			
1570			1575			1580			1585			1590			1595			
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1585			1590			1595			1600			1605			1610			
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Val	Pro	Met	Ile	Thr	Val	Asp	Gly	Pro	Ser	Pro	Ile	Gly	Ser	Arg	Arg			
1650			1655			1660			1665			1670			1675			
Thr	Ser	Gly	Gln	Tyr														

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			1780					1785				1790			
Val	Gln	Pro	Ala	Asp	Gly	Ser	Phe	Gly	Glu	Asn	Asp	Ser	Arg	Tyr	
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Ala	Pro	Arg 35	Asn	Ser	Met	Cys	Asn 40	Ala	Asn	Thr	Val	His	Ser 45	Ile	Ser	
Ser 50	Phe	Arg	Ser	Asp	His	Leu 55	Ser	Arg	Lys	Ser	Thr 60	His	Lys	Phe	Leu	
Asp 65	Asn	Pro	Asn	Leu	Phe 70	Ala	Ile	Glu	Leu	Thr 75	Glu	Lys	Leu	Ser	Pro 80	
Pro	Trp	Ile	Glu	Asn 85	Thr	Phe	Glu	Lys	Arg 90	Glu	Cys	Ile	Arg	Phe 95	Ala	
Ala	Leu	Pro	Lys 100	Asp	Pro	Glu	Arg	Cys 105	Gly	Cys	Gly	Arg	Pro 110	Leu	Ser	
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Ala	His	Lys	Ala 165	Gln	Tyr	Val	Arg	Leu	Ser 170	Tyr	Asp	Ser	Glu	Pro 175	Leu	
Asp	Val	Met	Tyr 180	Leu	Met	Glu	Lys	Val 185	Trp	Gly	Leu	Glu	Ala 190	Pro	Arg	
Leu 195	Val	Ile	Thr	Val	His	Gly	Gly 200	Met	Ser	Asn	Phe	Glu	Leu 205	Glu	Glu	
Arg 210	Leu	Gly	Arg	Leu	Phe	Arg	Lys 215	Gly	Met	Leu	Lys 220	Ala	Ala	Gln	Thr	
Thr 225	Gly	Ala	Trp	Ile 230	Ile	Thr	Ser	Gly	Leu	Asp 235	Ser	Gly	Val	Val	Arg 240	
His	Val	Ala	Lys 245	Ala	Leu	Asp	Glu	Ala	Gly 250	Ile	Ser	Ala	Arg	Met 255	Arg	
Ser	Gln	Ile	Val 260	Thr	Ile	Gly	Ile	Ala 265	Pro	Trp	Gly	Val	Ile 270	Lys	Arg	
Lys 275	Glu	Arg	Leu	Ile	Arg	Gln	Asn 280	Glu	His	Val	Tyr	Tyr 285	Asp	Val	His	
Ser 290	Leu	Ser	Val	Asn	Ala	Asn 295	Val	Gly	Ile	Leu	Asn 300	Asp	Arg	His	Ser	
Tyr 305	Phe	Leu	Leu	Ala	Asp 310	Asn	Gly	Thr	Val	Gly 315	Arg	Phe	Gly	Ala	Asp 320	
Leu	His	Leu	Arg	Gln 325	Asn	Leu	Glu	Asn	His 330	Ile	Ala	Thr	Phe	Gly 335	Cys	
Asn	Gly	Arg	Lys 340	Val	Pro	Val	Val	Cys 345	Thr	Leu	Leu	Glu	Gly 350	Gly	Ile	
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385					390					395					400
Gly	Glu	Lys	Leu	Arg	Asn	Leu	Ile	Lys	Met	Val	Phe	Pro	Glu	Thr	Asp
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Gln	Glu	Glu	Met	Phe	Arg	Lys	Ile	Thr	Glu	Cys	Val	Ile	Arg	Asp	Asp
			420					425					430		
Leu	Leu	Arg	Ile	Phe	Arg	Tyr	Gly	Gln	Glu	Glu	Glu	Glu	Asp	Val	Asp
			435				440					445			
Phe	Val	Ile	Leu	Ser	Thr	Val	Leu	Gln	Lys	Gln	Asn	Leu	Pro	Pro	Asp
450						455					460				
Glu	Gln	Leu	Ala	Leu	Thr	Leu	Ser	Trp	Asn	Arg	Val	Asp	Leu	Ala	Lys
465					470					475					480
Ser	Cys	Leu	Phe	Ser	Asn	Gly	Arg	Lys	Trp	Ser	Ser	Asp	Val	Leu	Glu
				485					490					495	
Lys	Ala	Met	Asn	Asp	Ala	Leu	Tyr	Trp	Asp	Arg	Val	Asp	Phe	Val	Glu
			500					505					510		
Cys	Leu	Leu	Glu	Asn	Gly	Val	Ser	Met	Lys	Asn	Phe	Leu	Ser	Ile	Asn
			515				520					525			
Arg	Leu	Glu	Asn	Leu	Tyr	Asn	Met	Asp	Asp	Ile	Asn	Ser	Ala	His	Ser
530						535					540				
Val	Arg	Asn	Trp	Met	Glu	Asn	Phe	Asp	Ser	Met	Asp	Pro	His	Thr	Tyr
545					550					555					560
Leu	Thr	Ile	Pro	Met	Ile	Gly	Gln	Val	Val	Glu	Lys	Leu	Met	Gly	Asn
				565				570						575	
Ala	Phe	Gln	Leu	Tyr	Tyr	Thr	Ser	Arg	Ser	Phe	Lys	Gly	Lys	Tyr	Asp
			580					585					590		
Arg	Tyr	Lys	Arg	Ile	Asn	Gln	Ser	Ser	Tyr	Phe	His	Arg	Lys	Arg	Lys
		595					600					605			
Ile	Val	Gln	Lys	Glu	Leu	Phe	Lys	Lys	Lys	Ser	Asp	Asp	Gln	Ile	Asn
610						615					620				
Asp	Asn	Glu	Glu	Glu	Asp	Phe	Ser	Phe	Ala	Tyr	Pro	Phe	Asn	Asp	Leu
625					630					635					640
Leu	Ile	Trp	Ala	Val	Leu	Thr	Ser	Arg	His	Gly	Met	Ala	Glu	Cys	Met
				645					650					655	
Trp	Val	His	Gly	Glu	Asp	Ala	Met	Ala	Lys	Cys	Leu	Leu	Ala	Ile	Arg
			660					665					670		
Leu	Tyr	Lys	Ala	Thr	Ala	Lys	Ile	Ala	Glu	Asp	Glu	Tyr	Leu	Asp	Val
		675					680					685			
Glu	Glu	Ala	Lys	Arg	Leu	Phe	Asp	Asn	Ala	Val	Lys	Cys	Arg	Glu	Asp
		690				695					700				
Ala	Ile	Glu	Leu	Leu	Asp	Gln	Cys	Tyr	Arg	Ala	Asp	His	Asp	Arg	Thr
705					710					715					720
Leu	Arg	Leu	Leu	Arg	Met	Glu	Leu	Pro	His	Trp	Gly	Asn	Asn	Asn	Cys
				725					730					735	
Leu	Ser	Leu	Ala	Val	Leu	Ala	Asn	Thr	Lys	Thr	Phe	Leu	Ala	His	Pro
			740					745					750		
Cys	Cys	Gln	Ile	Leu	Leu	Ala	Glu	Leu	Trp	His	Gly	Ser	Leu	Lys	Val
		755					760				765				
Arg	Ser	Gly	Ser	Asn	Val	Arg	Val	Leu	Thr	Ala	Leu	Ile	Cys	Pro	Pro
		770				775					780				
Ala	Ile	Leu	Phe	Met	Ala	Tyr	Lys	Pro	Lys	His	Ser	Lys	Thr	Ala	Arg
785					790					795					800
Leu	Leu	Ser	Glu	Glu	Thr	Pro	Glu	Gln	Leu	Pro	Tyr	Pro	Arg	Glu	Ser
				805					810					815	
Ile	Thr	Ser	Thr	Thr	Ser	Asn	Arg	Tyr	Arg	Tyr	Ser	Lys	Gly	Pro	Glu
			820					825					830		
Glu	Gln	Lys	Glu	Thr	Leu	Leu	Glu	Lys	Gly	Ser	Tyr	Thr	Lys	Lys	Val
		835					840						845		

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Thr	Ile	Ile	Ser	Ser	Arg	Lys	Asn	Ser	Gly	Val	Ala	Ser	Val	Tyr	Gly
850						855					860				
Ser	Ala	Ser	Ser	Met	Met	Phe	Lys	Arg	Glu	Pro	Gln	Leu	Asn	Lys	Phe
865					870					875					880
Glu	Arg	Phe	Arg	Ala	Phe	Tyr	Ser	Ser	Pro	Ile	Thr	Lys	Phe	Trp	Ser
				885					890					895	
Trp	Cys	Ile	Ala	Phe	Leu	Ile	Phe	Leu	Thr	Thr	Gln	Thr	Cys	Ile	Leu
			900					905					910		
Leu	Leu	Glu	Thr	Ser	Leu	Lys	Pro	Ser	Lys	Tyr	Glu	Trp	Ile	Thr	Phe
		915					920					925			
Ile	Tyr	Thr	Val	Thr	Leu	Ser	Val	Glu	His	Ile	Arg	Lys	Leu	Met	Thr
930						935					940				
Ser	Glu	Gly	Ser	Arg	Ile	Asn	Glu	Lys	Val	Lys	Val	Phe	Tyr	Ala	Lys
945					950					955					960
Trp	Tyr	Asn	Ile	Trp	Thr	Ser	Ala	Ala	Leu	Leu	Phe	Phe	Leu	Val	Gly
				965					970					975	
Tyr	Gly	Phe	Arg	Leu	Val	Pro	Met	Tyr	Arg	His	Ser	Trp	Gly	Arg	Val
			980					985					990		
Leu	Leu	Ser	Phe	Ser	Asn	Val	Leu	Phe	Tyr	Met	Lys	Ile	Phe	Glu	Tyr
		995					1000					1005			
Leu	Ser	Val	His	Pro	Leu	Leu	Gly	Pro	Tyr	Ile	Gln	Met	Ala	Ala	Lys
1010							1015				1020				
Met	Val	Trp	Ser	Met	Cys	Tyr	Ile	Cys	Val	Leu	Leu	Leu	Val	Pro	Leu
1025					1030					1035					104
Met	Ala	Phe	Gly	Val	Asn	Arg	Gln	Ala	Leu	Thr	Glu	Pro	Asn	Val	Lys
				1045						1050				1055	
Asp	Trp	His	Trp	Leu	Leu	Val	Arg	Asn	Ile	Phe	Tyr	Lys	Pro	Tyr	Phe
			1060					1065					1070		
Met	Leu	Tyr	Gly	Glu	Val	Tyr	Ala	Gly	Glu	Ile	Asp	Thr	Cys	Gly	Asp
		1075					1080					1085			
Glu	Gly	Ile	Arg	Cys	Phe	Pro	Gly	Tyr	Phe	Ile	Pro	Pro	Leu	Leu	Met
1090						1095					1100				
Val	Ile	Phe	Leu	Leu	Val	Ala	Asn	Ile	Leu	Leu	Leu	Asn	Leu	Leu	Ile
1105					1110						1115				112
Ala	Ile	Phe	Asn	Asn	Ile	Tyr	Asn	Asp	Ser	Ile	Glu	Lys	Ser	Lys	Glu
				1125					1130					1135	
Ile	Trp	Leu	Phe	Gln	Arg	Tyr	Gln	Gln	Leu	Met	Glu	Tyr	His	Asp	Ser
			1140					1145					1150		
Pro	Phe	Leu	Pro	Pro	Pro	Phe	Ser	Ile	Phe	Ala	His	Val	Tyr	His	Phe
			1155				1160					1165			
Ile	Asp	Tyr	Leu	Tyr	Asn	Leu	Arg	Arg	Pro	Asp	Thr	Lys	Arg	Phe	Arg
1170					1175						1180				
Ser	Glu	His	Ser	Ile	Lys	Leu	Ser	Val	Thr	Glu	Asp	Glu	Met	Lys	Arg
1185					1190					1195				120	
Ile	Gln	Asp	Phe	Glu	Glu	Asp	Cys	Ile	Asp	Thr	Leu	Thr	Arg	Ile	Arg
				1205					1210					1215	
Lys	Leu	Lys	Leu	Asn	Thr	Lys	Glu	Pro	Leu	Ser	Val	Thr	Asp	Leu	Thr
			1220					1225					1230		
Glu	Leu	Thr	Cys	Gln	Arg	Val	His	Asp	Leu	Met	Gln	Glu	Asn	Phe	Leu
		1235					1240					1245			
Leu	Lys	Ser	Arg	Val	Tyr	Asp	Ile	Glu	Thr	Lys	Ile	Asp	His	Ile	Ser
1250					1255						1260				
Asn	Ser	Ser	Asp	Glu	Val	Val	Gln	Ile	Leu	Lys	Asn	Lys	Lys	Leu	Ser
1265					1270					1275				128	
Gln	Asn	Phe	Ala	Ala	Ser	Ser	Leu	Ser	Leu	Pro	Asp	Thr	Ser	Ile	Glu
				1285					1290					1295	
Val	Pro	Lys	Ile	Thr	Lys	Thr	Leu	Ile	Asp	Cys	His	Leu	Ser	Pro	Val
			1300					1305				1310			
Ser	Ile	Glu	Asp	Arg	Leu	Ala	Thr	Arg	Ser	Pro	Leu	Leu	Ala	Asn	Leu
		1315					1320					1325			

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Gln Arg Asp His Thr Leu Arg Lys Leu Pro Thr Trp Glu Thr Ser Thr
 1330 1335 1340
 Ala Ser Thr Ser Ser Phe Glu Phe Val Phe Tyr Phe Thr Arg His Glu
 1345 1350 1355 136
 Gly Asn Glu Asn Lys Tyr Glu Phe Lys Lys Leu Glu Lys Gly Gly Phe
 1365 1370 1375
 Trp Arg Asn Asn Tyr Val Ile Ser Trp Arg Leu
 1380 1385

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 <211> 1868
 <212> PRT
 <213> C. Elegans

<400> 15
 Met Asn Leu Cys Tyr Arg Arg His Arg Tyr Ala Ser Ser Pro Glu Val
 1 5 10 15
 Trp Cys Thr Met Glu Ser Asp Glu Leu Gly Val Thr Arg Tyr Leu Gln
 20 25 30
 Ser Lys Gly Gly Asp Gln Val Pro Pro Thr Ser Thr Thr Thr Gly Gly
 35 40 45
 Ala Gly Gly Asp Gly Asn Ala Val Pro Thr Thr Ser Gln Ala Gln Ala
 50 55 60
 Gln Thr Phe Asn Ser Gly Arg Gln Thr Thr Gly Met Ser Ser Gly Asp
 65 70 75 80
 Arg Leu Asn Glu Asp Val Ser Ala Thr Ala Asn Ser Ala Gln Leu Val
 85 90 95
 Leu Pro Thr Pro Leu Phe Asn Gln Met Arg Phe Thr Glu Ser Asn Met
 100 105 110
 Ser Leu Asn Arg His Asn Trp Val Arg Glu Thr Phe Thr Arg Arg Glu
 115 120 125
 Cys Ser Arg Phe Ile Ala Ser Ser Arg Asp Leu His Lys Cys Gly Cys
 130 135 140
 Gly Arg Thr Arg Asp Ala His Arg Asn Ile Pro Glu Leu Thr Ser Glu
 145 150 155 160
 Phe Leu Arg Gln Lys Arg Ser Val Ala Ala Leu Glu Gln Gln Arg Ser
 165 170 175
 Ile Ser Asn Val Asn Asp Asp Ile Asn Thr Gln Asn Met Tyr Thr Lys
 180 185 190
 Arg Gly Ala Asn Glu Lys Trp Ser Leu Arg Lys His Thr Val Ser Leu
 195 200 205
 Ala Thr Asn Ala Phe Gly Gln Val Glu Phe Gln Gly Gly Pro His Pro
 210 215 220
 Tyr Lys Ala Gln Tyr Val Arg Val Asn Phe Asp Thr Glu Pro Ala Tyr
 225 230 235 240
 Ile Met Ser Leu Phe Glu His Val Trp Gln Ile Ser Pro Pro Arg Leu
 245 250 255
 Ile Ile Thr Val His Gly Gly Thr Ser Asn Phe Asp Leu Gln Pro Lys
 260 265 270
 Leu Ala Arg Val Phe Arg Lys Gly Leu Leu Lys Ala Ala Ser Thr Thr
 275 280 285
 Gly Ala Trp Ile Ile Thr Ser Gly Cys Asp Thr Gly Val Val Lys His
 290 295 300
 Val Ala Ala Ala Leu Glu Gly Ala Gln Ser Ala Gln Arg Asn Lys Ile
 305 310 315 320
 Val Cys Ile Gly Ile Ala Pro Trp Gly Leu Leu Lys Lys Arg Glu Asp
 325 330 335
 Phe Ile Gly Gln Asp Lys Thr Val Pro Tyr Tyr Pro Ser Ser Ser Lys
 340 345 350
 Gly Arg Phe Thr Gly Leu Asn Asn Arg His Ser Tyr Phe Leu Leu Val

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835	840	845
Ala Glu Phe Arg Ile Leu Ser Leu Glu Leu Leu Asp His Cys Tyr		
850	855	860
His Val Asp Asp Ala Gln Thr Leu Gln Leu Leu Thr Tyr Glu Leu Ser		
865	870	875
Asn Trp Ser Asn Glu Thr Cys Leu Ala Leu Ala Val Ile Val Asn Asn		880
	885	890
Lys His Phe Leu Ala His Pro Cys Cys Gln Ile Leu Leu Ala Asp Leu		895
	900	905
Trp His Gly Gly Leu Arg Met Arg Thr His Ser Asn Ile Lys Val Val		910
	915	920
Leu Gly Leu Ile Cys Pro Pro Phe Ile Gln Met Leu Glu Phe Lys Thr		925
	930	935
Arg Glu Glu Leu Leu Asn Gln Pro Gln Thr Ala Ala Glu His Gln Asn		940
945	950	955
Asp Met Asn Tyr Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser		960
	965	970
Ser Ser Ser Ser Ser Asp Ser Ser Ser Ser Phe Glu Asp Asp Asp Asp Glu		975
	980	985
Asn Asn Ala His Asn His Asp Gln Lys Arg Thr Arg Lys Thr Ser Gln		990
	995	1000
Gly Ser Ala Gln Ser Leu Asn Ile Thr Ser Leu Phe His Ser Arg Arg		1005
	1010	1015
Arg Lys Ala Lys Lys Asn Glu Lys Cys Asp Arg Glu Thr Asp Ala Ser		1020
1025	1030	1035
Ala Cys Glu Ala Gly Asn Arg Gln Ile Gln Asn Gly Gly Leu Thr Ala		1040
	1045	1050
Glu Tyr Gly Thr Phe Gly Glu Ser Asn Gly Val Ser Pro Pro Pro Pro		1055
	1060	1065
Tyr Met Arg Ala Asn Ser Arg Ser Arg Tyr Asn Asn Arg Ser Asp Met		1070
	1075	1080
Ser Lys Thr Ser Ser Val Ile Phe Gly Ser Asp Pro Asn Leu Ser Lys		1085
	1090	1095
Leu Gln Lys Ser Asn Ile Thr Ser Thr Asp Arg Pro Asn Pro Met Glu		1100
1105	1110	1115
Gln Phe Gln Gly Thr Arg Lys Ile Lys Met Arg Arg Arg Phe Tyr Glu		1120
	1125	1130
Phe Tyr Ser Ala Pro Ile Ser Thr Phe Trp Ser Trp Thr Ile Ser Phe		1135
	1140	1145
Ile Leu Phe Ile Thr Phe Phe Thr Tyr Thr Leu Leu Val Lys Thr Pro		1150
	1155	1160
Pro Arg Pro Thr Val Ile Glu Tyr Ile Leu Ile Ala Tyr Val Ala Ala		1165
	1170	1175
Phe Gly Leu Glu Gln Val Arg Lys Ile Ile Met Ser Asp Ala Lys Pro		1180
1185	1190	1195
Phe Tyr Glu Lys Ile Arg Thr Tyr Val Cys Ser Phe Trp Asn Cys Val		1200
	1205	1210
Thr Ile Leu Ala Ile Ile Phe Tyr Ile Val Gly Phe Phe Met Arg Cys		1215
	1220	1225
Phe Gly Ser Val Ala Tyr Gly Arg Val Ile Leu Ala Cys Asp Ser Val		1230
	1235	1240
Leu Trp Thr Met Lys Leu Leu Asp Tyr Met Ser Val His Pro Lys Leu		1245
	1250	1255
Gly Pro Tyr Val Thr Met Ala Gly Lys Met Ile Gln Asn Met Ser Tyr		1260
1265	1270	1275
Ile Ile Val Met Leu Val Val Thr Leu Leu Ser Phe Gly Leu Ala Arg		1280
	1285	1290
Gln Ser Ile Thr Tyr Pro Asp Glu Thr Trp His Trp Ile Leu Val Arg		1295
	1300	1305
Asn Ile Phe Leu Lys Pro Tyr Phe Met Leu Tyr Gly Glu Val Tyr Ala		1310

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1315	1320	1325
Asp Glu Ile Asp Thr Cys Gly Asp Glu Ala Trp Asp Gln His Leu Glu		
1330	1335	1340
Asn Gly Gly Pro Val Ile Leu Gly Asn Gly Thr Thr Gly Leu Ser Cys		
1345	1350	1355
Val Pro Gly Tyr Trp Ile Pro Pro Leu Leu Met Thr Phe Phe Leu Leu		
1365	1370	1375
Ile Ala Asn Ile Leu Leu Met Ser Met Leu Ile Ala Ile Phe Asn His		
1380	1385	1390
Ile Phe Asp Ala Thr Asp Glu Met Ser Gln Gln Ile Trp Leu Phe Gln		
1395	1400	1405
Arg Tyr Lys Gln Val Met Glu Tyr Glu Ser Thr Pro Phe Leu Pro Pro		
1410	1415	1420
Pro Leu Thr Pro Leu Tyr His Gly Val Leu Ile Leu Gln Phe Val Arg		
1425	1430	1435
Thr Arg Leu Ser Cys Ser Lys Ser Gln Glu Arg Asn Pro Ile Leu Leu		
1445	1450	1455
Leu Lys Ile Ala Glu Leu Phe Leu Asp Asn Asp Gln Ile Glu Lys Leu		
1460	1465	1470
His Asp Phe Glu Glu Asp Cys Met Glu Asp Leu Ala Arg Gln Lys Leu		
1475	1480	1485
Asn Glu Lys Asn Thr Ser Asn Glu Gln Arg Ile Leu Arg Ala Asp Ile		
1490	1495	1500
Arg Thr Asp Gln Ile Leu Asn Arg Leu Ile Asp Leu Gln Ala Lys Glu		
1505	1510	1515
Ser Met Gly Arg Asp Val Ile Asn Asp Val Glu Ser Arg Leu Ala Ser		
1525	1530	1535
Val Glu Lys Ala Gln Asn Glu Ile Leu Glu Cys Val Arg Ala Leu Leu		
1540	1545	1550
Asn Gln Asn Asn Ala Pro Thr Ala Ile Gly Arg Cys Phe Ser Pro Ser		
1555	1560	1565
Pro Asp Pro Leu Val Glu Thr Ala Asn Gly Thr Pro Gly Pro Leu Leu		
1570	1575	1580
Leu Lys Leu Pro Gly Thr Asp Pro Ile Leu Glu Glu Lys Asp His Asp		
1585	1590	1595
Ser Gly Glu Asn Ser Asn Ser Leu Pro Pro Gly Arg Ile Arg Arg Asn		
1605	1610	1615
Arg Thr Ala Thr Ile Cys Gly Gly Tyr Val Ser Glu Glu Arg Asn Met		
1620	1625	1630
Met Leu Leu Ser Pro Lys Pro Ser Asp Val Ser Gly Ile Pro Gln Gln		
1635	1640	1645
Arg Leu Met Ser Val Thr Ser Met Asp Pro Leu Pro Leu Pro Leu Ala		
1650	1655	1660
Lys Leu Ser Thr Met Ser Ile Arg Arg Arg His Glu Glu Tyr Thr Ser		
1665	1670	1675
Ile Thr Asp Ser Ile Ala Ile Arg His Pro Glu Arg Arg Ile Arg Asn		
1685	1690	1695
Asn Arg Ser Asn Ser Ser Glu His Asp Glu Ser Ala Val Asp Ser Glu		
1700	1705	1710
Gly Gly Gly Asn Val Thr Ser Ser Pro Arg Lys Arg Ser Thr Arg Asp		
1715	1720	1725
Leu Arg Met Thr Pro Ser Ser Gln Val Glu Glu Ser Thr Ser Arg Asp		
1730	1735	1740
Gln Ile Phe Glu Ile Asp His Pro Glu His Glu Glu Asp Glu Ala Gln		
1745	1750	1755
Ala Asp Cys Glu Leu Thr Asp Val Ile Thr Glu Glu Glu Asp Glu Glu		
1765	1770	1775
Glu Asp Asp Glu Glu Asp Asp Ser His Glu Arg His His Ile His Pro		
1780	1785	1790
Arg Arg Lys Ser Ser Arg Gln Asn Arg Gln Pro Ser His Thr Leu Glu		

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1795 1800 1805
 Thr Asp Leu Ser Glu Gly Glu Glu Val Asp Pro Leu Asp Val Leu Lys
 1810 1815 1820
 Met Lys Glu Leu Pro Ile Ile His Gln Ile Leu Asn Glu Glu Glu Gln
 1825 1830 1835 184
 Ala Gly Ala Pro His Ser Thr Pro Val Ile Ala Ser Pro Ser Ser Ser
 1845 1850 1855
 Arg Ala Asp Leu Thr Ser Gln Lys Cys Ser Asp Val
 1860 1865

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 <212> DNA
 <213> Mus Musculus

<400> 16
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 ggctgcaggc cgcggaggtg gaggaggagc cgctgccctt ccggagtcct ccccgtagag 180
 agaatgtccc agaaatcctg gatagagagc actttgacca agagggagtg tgtatatatt 240
 ataccaagct ccaaagaccc tcacagatgt cttccaggat gtcagatttg tcagcaactt 300
 gtcagatgtt tctgtggtcg tttggtcaag caacatgcat gctttactgc aagtcttgcc 360
 atgaaatact cagatgtgaa attgggtgaa cactttaacc aggcaataga agaatggtct 420
 gtggaagaagc acacggagca gagcccaaca gatgcttatg gagtcacaa ttttcaaggg 480
 ggtttctcat 489

<210> 17
 <211> 102
 <212> PRT
 <213> Mus Musculus

<400> 17
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 Val Tyr Ile Ile Pro Ser Ser Lys Asp Pro His Arg Cys Leu Pro Gly
 20 25 30
 Cys Gln Ile Cys Gln Gln Leu Val Arg Cys Phe Cys Gly Arg Leu Val
 35 40 45
 Lys Gln His Ala Cys Phe Thr Ala Ser Leu Ala Met Lys Tyr Ser Asp
 50 55 60
 Val Lys Leu Gly Glu His Phe Asn Gln Ala Ile Glu Glu Trp Ser Val
 65 70 75 80
 Glu Lys His Thr Glu Gln Ser Pro Thr Asp Ala Tyr Gly Val Ile Asn
 85 90 95
 Phe Gln Gly Gly Ser His
 100

<210> 18
 <211> 410
 <212> DNA
 <213> Homo Sapiens

<220>
 <221> unsure
 <222> (6)...(6)

 <221> unsure
 <222> (58)...(58)

 <221> unsure

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<222> (89)...(89)

<221> unsure

<222> (406)...(406)

<400> 18

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ctagtggctc	tcacctgctt	cctcctgggc	gtgggctgcc	ggctgacccc	gggtttgtac	180
cacctggggc	gcactgtcct	ctgcatcgac	ttcatggttt	tcacggtgcg	gctgcttcac	240
atcttcacgg	tcaacaaaca	gctggggccc	aagatcgta	tcgtgagcaa	gatgatgaag	300
gacgtgttct	tcttcctctt	cttcctcggc	gtgtggctgg	tagctatggg	ttggggccacg	360
gaggggttcc	tgaggccacg	ggacagtgac	ttcccaagta	tcctgncgcc		410

<210> 19

<211> 131

<212> PRT

<213> Homo Sapiens

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<222> (131)...(131)

<223> UNKNOWN

<400> 19

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Cys	Leu	Thr	Glu	Pro	Ala	Pro	Ala	Xaa	Tyr	Leu	Ala	Asp	Ser	Trp	Asn
			20					25					30		
Gln	Cys	Asp	Leu	Val	Ala	Leu	Thr	Cys	Phe	Leu	Leu	Gly	Val	Gly	Cys
		35					40					45			
Arg	Leu	Thr	Pro	Gly	Leu	Tyr	His	Leu	Gly	Arg	Thr	Val	Leu	Cys	Ile
	50					55				60					
Asp	Phe	Met	Val	Phe	Thr	Val	Arg	Leu	Leu	His	Ile	Phe	Thr	Val	Asn
65					70					75				80	
Lys	Gln	Leu	Gly	Pro	Lys	Ile	Val	Ile	Val	Ser	Lys	Met	Met	Lys	Asp
			85						90					95	
Val	Phe	Phe	Phe	Leu	Phe	Phe	Leu	Gly	Val	Trp	Leu	Val	Ala	Met	Gly
			100					105					110		
Trp	Ala	Thr	Glu	Gly	Phe	Leu	Arg	Pro	Arg	Asp	Ser	Asp	Phe	Pro	Ser
		115					120					125			
Ile	Leu	Xaa													
		130													

<210> 20

<211> 389

<212> DNA

<213> Homo Sapiens

<400> 20

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caaagatcaa	gaaactgttt	gctctaaagc	tacagaagga	gataatacag	aatttgagac	120

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atttgtagga	cacagagata	gcatggattt	acagagggtt	aaagaaacat	caaacaagat	180
aaaaatacta	tccaataaca	atacttctga	aaacactttg	aaacgagtga	gttctcttgc	240
tggatttact	gactgtcaca	gaacttccat	tcctgttcat	tcaaaacgag	aaaagatcag	300
tagaaggcca	tctaccgaag	acactcatga	agtagattcc	aaagcagctt	taataccggt	360
ttgtagattt	caactaaaca	gatatatat				389

<210> 21
 <211> 415
 <212> DNA
 <213> Homo Sapiens

<400> 21

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ttatatTTaa	aactttttta	tgtccatcat	cacttttaac	atacttattt	tgtcatctat	120
aaccaataat	tccactatct	tatcagaaat	caaataccgt	ttatgtaagt	tgactcccat	180
gagttctaaa	ttgccattgt	gaggtcatct	tcggtttaggc	tttaatttgt	tgcaaagttg	240
tgcagctcag	ggtcaggaag	agtccttcca	gaaaggagga	tttgttactg	tgaatctctt	300
tgTTaactaa	cctctttccc	cactgaaata	acttttttca	ataacatgat	tttaacaaca	360
taatctctct	atgccagaac	agatatatat	gaatgtaagt	caatatTTtc	ttgag	415

<210> 22
 <211> 405
 <212> DNA
 <213> Mus Musculus

<400> 22

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Ala	Val	Glu	Leu	Leu	Glu	Gln	Ser	Phe	Arg	Gln	Asp	Glu	Thr	Met	Ala
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Met	Lys	Leu	Leu	Thr	Tyr	Glu	Leu	Lys	Asn	Trp	Ser	Asn	Ser	Thr	Cys
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Leu	Lys	Leu	Ala	Val	Ser	Ser	Arg	Leu	Arg	Pro	Phe	Val	Ala	His	Thr
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Arg	Lys	Asn 115	Ser	Trp	Tyr	Lys	Val 120	Ile	Leu	Ser	Ile	Leu 125	Val	Pro	Pro
Ala	Ile 130	Leu	Leu	Leu	Glu	Tyr 135	Lys	Thr	Lys	Ala	Glu 140	Met	Ser	His	Ile
Pro 145	Gln	Ser	Gln	Asp	Ala 150	His	Gln	Met	Thr	Met 155	Asp	Asp	Ser	Glu	Asn 160
Asn	Phe	Gln	Asn	Ile 165	Thr	Glu	Glu	Ile	Pro 170	Met	Glu	Val	Phe	Lys	Glu
Val	Arg	Ile 180	Leu	Asp	Ser	Asn	Glu	Gly 185	Lys	Asn	Glu	Met	Glu 190	Ile	Gln
Met	Lys	Ser 195	Lys	Lys	Leu	Pro	Ile 200	Thr	Arg	Lys	Phe	Tyr 205	Ala	Phe	Tyr
His	Ala 210	Pro	Ile	Val	Lys	Phe 215	Trp	Phe	Asn	Thr	Leu 220	Ala	Tyr	Leu	Gly
Phe 225	Leu	Met	Leu	Tyr	Thr 230	Phe	Val	Val	Leu	Val 235	Gln	Met	Glu	Gln	Leu 240
Pro	Ser	Val	Gln	Glu 245	Trp	Ile	Val	Ile	Ala 250	Tyr	Ile	Phe	Thr	Tyr	Ala 255
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Val 370	Leu	Leu	Ser	Phe	Gly	Val 375	Pro	Arg	Lys	Ala	Ile 380	Leu	Tyr	Pro	His
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Pro	Phe	Leu 435	Gln	Ala	Val	Tyr	Leu 440	Phe	Val	Gln	Tyr	Ile 445	Ile	Met	Val
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Leu	His 530	Asp	Phe	Glu	Glu	Gln 535	Cys	Val	Glu	Met	Tyr 540	Phe	Asn	Glu	Lys
Asp 545	Asp	Lys	Phe	His	Ser 550	Gly	Ser	Glu	Glu	Arg 555	Ile	Arg	Val	Thr	Phe 560
Glu	Arg	Val	Glu	Gln 565	Met	Cys	Ile	Gln	Ile 570	Lys	Glu	Val	Gly	Asp 575	Arg

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Gly	His	Arg	Asp	Ser	Met	Asp	Leu	Gln	Arg	Phe	Lys	Glu	Thr	Ser	Asn
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 1105 1110 1115 112
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 Pro Ser Val Ile Lys Ala Glu Glu Lys Arg Ser Cys Asp Met Val Phe
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 His His Cys Asn Ser Cys Cys Arg Lys Leu Lys Leu Pro Asp Leu Lys
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Gln	Met	Glu	Leu	Pro	Lys	Leu	Val	Ile	Ser	Val	His	Gly	Gly	Met	Gln
		130				135					140				
Lys	Phe	Glu	Leu	His	Pro	Arg	Ile	Lys	Gln	Leu	Leu	Gly	Lys	Gly	Leu
145					150					155					160
Ile	Lys	Ala	Ala	Val	Thr	Thr	Gly	Ala	Trp	Ile	Leu	Thr	Gly	Gly	Val
				165					170					175	
Asn	Thr	Gly	Val	Ala	Lys	His	Val	Gly	Asp	Ala	Leu	Lys	Glu	His	Ala
			180					185					190		
Ser	Arg	Ser	Ser	Arg	Lys	Ile	Cys	Thr	Ile	Gly	Ile	Ala	Pro	Trp	Gly
		195					200					205			
Val	Ile	Glu	Asn	Arg	Asn	Asp	Leu	Val	Gly	Arg	Asp	Val	Val	Ala	Pro
		210				215					220				
Tyr	Gln	Thr	Leu	Leu	Asn	Pro	Leu	Ser	Lys	Leu	Asn	Val	Leu	Asn	Asn
225					230					235				240	
Leu	His	Ser	His	Phe	Ile	Leu	Val	Asp	Asp	Gly	Thr	Val	Gly	Lys	Tyr
				245					250					255	
Gly	Ala	Glu	Val	Arg	Leu	Arg	Arg	Glu	Leu	Glu	Lys	Thr	Ile	Asn	Gln
			260					265					270		
Gln	Arg	Ile	His	Ala	Arg	Ile	Gly	Gln	Gly	Val	Pro	Val	Val	Ala	Leu
			275				280						285		
Ile	Phe	Glu	Gly	Gly	Pro	Asn	Val	Ile	Leu	Thr	Val	Leu	Glu	Tyr	Leu
		290				295					300				
Gln	Glu	Ser	Pro	Pro	Val	Pro	Val	Val	Val	Cys	Glu	Gly	Thr	Gly	Arg
305					310					315					320
Ala	Ala	Asp	Leu	Leu	Ala	Tyr	Ile	His	Lys	Gln	Thr	Glu	Glu	Gly	Gly
				325					330					335	
Asn	Leu	Pro	Asp	Ala	Ala	Glu	Pro	Asp	Ile	Ile	Ser	Thr	Ile	Lys	Lys
			340					345					350		
Thr	Phe	Asn	Phe	Gly	Gln	Asn	Glu	Ala	Leu	His	Leu	Phe	Gln	Thr	Leu
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Lys	Gly	Thr	Asn	Ala	Ser	Ala	Phe	Asp	Gln	Leu	Ile	Leu	Thr	Leu	Ala
			405						410					415	
Trp	Asp	Arg	Val	Asp	Ile	Ala	Lys	Asn	His	Val	Phe	Val	Tyr	Gly	Gln
			420					425					430		
Gln	Trp	Leu	Val	Gly	Ser	Leu	Glu	Gln	Ala	Met	Leu	Asp	Ala	Leu	Val
		435					440					445			
Met	Asp	Arg	Val	Ala	Phe	Val	Lys	Leu	Leu	Ile	Glu	Asn	Gly	Val	Ser
	450					455					460				
Met	His	Lys	Phe	Leu	Thr	Ile	Pro	Arg	Leu	Glu	Glu	Leu	Tyr	Asn	Thr
465					470					475					480
Lys	Gln	Gly	Pro	Thr	Asn	Pro	Met	Leu	Phe	His	Leu	Val	Arg	Asp	Val
			485						490					495	
Lys	Gln	Gly	Asn	Leu	Pro	Pro	Gly	Tyr	Lys	Ile	Thr	Leu	Ile	Asp	Ile
			500					505						510	
Gly	Leu	Val	Ile	Glu	Tyr	Leu	Met	Gly	Gly	Thr	Tyr	Arg	Cys	Thr	Tyr
		515					520					525			
Thr	Arg	Lys	Arg	Phe	Arg	Leu	Ile	Tyr	Asn	Ser	Leu	Gly	Gly	Asn	Asn
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Ser	His	Glu	Ser	Phe	Gly	Asn	Arg	Ala	Asp	Lys	Lys	Glu	Lys	Met	Arg
				565					570					575	
His	Asn	His	Phe	Ile	Lys	Thr	Ala	Gln	Pro	Phe	Arg	Pro	Lys	Ile	Asp
			580					585					590		
Thr	Val	Met	Glu	Glu	Gly	Lys	Lys	Lys	Arg	Thr	Lys	Asp	Glu	Ile	Val
		595					600					605			
Asp	Ile	Asp	Asp	Pro	Glu	Thr	Lys	Arg	Phe	Pro	Tyr	Pro	Leu	Asn	Glu
	610					615					620				
Leu	Leu	Ile	Trp	Ala	Cys	Leu	Met	Lys	Arg	Gln	Val	Met	Ala	Arg	Phe
625					630					635					640
Leu	Trp	Gln	His	Gly	Glu	Glu	Ser	Met	Ala	Lys	Ala	Leu	Val	Ala	Cys
			645						650					655	
Lys	Ile	Tyr	Arg	Ser	Met	Ala	Tyr	Glu	Ala	Lys	Gln	Ser	Asp	Leu	Val
			660					665					670		
Asp	Asp	Thr	Ser	Glu	Glu	Leu	Lys	Gln	Tyr	Ser	Asn	Asp	Phe	Gly	Gln
		675					680					685			
Leu	Ala	Val	Glu	Leu	Leu	Glu	Gln	Ser	Phe	Arg	Gln	Asp	Glu	Thr	Met
	690					695					700				
Ala	Met	Lys	Leu	Leu	Thr	Tyr	Glu	Leu	Lys	Asn	Trp	Ser	Asn	Ser	Thr
705					710					715					720
Cys	Leu	Lys	Leu	Ala	Val	Ser	Ser	Arg	Leu	Arg	Pro	Phe	Val	Ala	His
				725					730					735	
Thr	Cys	Thr	Gln	Met	Leu	Leu	Ser	Asp	Met	Trp	Met	Gly	Arg	Leu	Asn
			740					745					750		
Met	Arg	Lys	Asn	Ser	Trp	Tyr	Lys	Val	Ile	Leu	Ser	Ile	Leu	Val	Pro
		755					760					765			
Pro	Ala	Ile	Leu	Leu	Leu	Glu	Tyr	Lys	Thr	Lys	Ala	Glu	Met	Ser	His
	770					775					780				
Ile	Pro	Gln	Ser	Gln	Asp	Ala	His	Gln	Met	Thr	Met	Asp	Asp	Ser	Glu
785					790					795					800
Asn	Asn	Phe	Gln	Asn	Ile	Thr	Glu	Glu	Ile	Pro	Met	Glu	Val	Phe	Lys
				805					810					815	
Glu	Val	Arg	Ile	Leu	Asp	Ser	Asn	Glu	Gly	Lys	Asn	Glu	Met	Glu	Ile
			820					825				830			
Gln	Met	Lys	Ser	Lys	Lys	Leu	Pro	Ile	Thr	Arg	Lys	Phe	Tyr	Ala	Phe
		835					840					845			

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Tyr	His	Ala	Pro	Ile	Val	Lys	Phe	Trp	Phe	Asn	Thr	Leu	Ala	Tyr	Leu
850						855					860				
Gly	Phe	Leu	Met	Leu	Tyr	Thr	Phe	Val	Val	Leu	Val	Gln	Met	Glu	Gln
865					870					875					880
Leu	Pro	Ser	Val	Gln	Glu	Trp	Ile	Val	Ile	Ala	Tyr	Ile	Phe	Thr	Tyr
				885						890					895
Ala	Ile	Glu	Lys	Val	Arg	Glu	Ile	Phe	Met	Ser	Glu	Ala	Gly	Lys	Val
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Asn	Gln	Lys	Ile	Lys	Val	Trp	Phe	Ser	Asp	Tyr	Phe	Asn	Ile	Ser	Asp
		915					920					925			
Thr	Ile	Ala	Ile	Ile	Ser	Phe	Phe	Ile	Gly	Phe	Gly	Leu	Arg	Phe	Gly
	930					935					940				
Ala	Lys	Trp	Asn	Phe	Ala	Asn	Ala	Tyr	Asp	Asn	His	Val	Phe	Val	Ala
945					950					955					960
Gly	Arg	Leu	Ile	Tyr	Cys	Leu	Asn	Ile	Ile	Phe	Trp	Tyr	Val	Arg	Leu
				965					970						975
Leu	Asp	Phe	Leu	Ala	Val	Asn	Gln	Gln	Ala	Gly	Pro	Tyr	Val	Met	Met
			980					985					990		
Ile	Gly	Lys	Met	Val	Ala	Asn	Met	Phe	Tyr	Ile	Val	Val	Ile	Met	Ala
		995				1000						1005			
Leu	Val	Leu	Leu	Ser	Phe	Gly	Val	Pro	Arg	Lys	Ala	Ile	Leu	Tyr	Pro
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His	Glu	Ala	Pro	Ser	Trp	Thr	Leu	Ala	Lys	Asp	Ile	Val	Phe	His	Pro
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Tyr	Trp	Met	Ile	Phe	Gly	Glu	Val	Tyr	Ala	Tyr	Glu	Ile	Asp	Val	Cys
				1045					1050					1055	
Ala	Asn	Asp	Ser	Val	Ile	Pro	Gln	Ile	Cys	Gly	Pro	Gly	Thr	Trp	Leu
			1060					1065					1070		
Thr	Pro	Phe	Leu	Gln	Ala	Val	Tyr	Leu	Phe	Val	Gln	Tyr	Ile	Ile	Met
		1075				1080						1085			
Val	Asn	Leu	Leu	Ile	Ala	Phe	Phe	Asn	Asn	Val	Tyr	Leu	Gln	Val	Lys
	1090				1095						1100				
Ala	Ile	Ser	Asn	Ile	Val	Trp	Lys	Tyr	Gln	Arg	Tyr	His	Phe	Ile	Met
1105				1110						1115					1120
Ala	Tyr	His	Glu	Lys	Pro	Val	Leu	Pro	Pro	Pro	Leu	Ile	Ile	Leu	Ser
				1125					1130					1135	
His	Ile	Val	Ser	Leu	Phe	Cys	Cys	Ile	Cys	Lys	Arg	Arg	Lys	Lys	Asp
			1140					1145					1150		
Lys	Thr	Ser	Asp	Gly	Pro	Lys	Leu	Phe	Leu	Thr	Glu	Glu	Asp	Gln	Lys
		1155				1160						1165			
Lys	Leu	His	Asp	Phe	Glu	Glu	Gln	Cys	Val	Glu	Met	Tyr	Phe	Asn	Glu
	1170				1175						1180				
Lys	Asp	Asp	Lys	Phe	His	Ser	Gly	Ser	Glu	Glu	Arg	Ile	Arg	Val	Thr
1185					1190					1195			</		

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Ile Phe Gly Gln Asp Leu Pro Ala Val Pro Gln Arg Lys Glu Phe Asn
 1330 1335 1340
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 1345 1350 1355 1360
 Ser Pro Pro Glu Leu Arg Gln Arg Leu His Gly Val Glu Leu Leu Lys
 1365 1370 1375
 Ile Phe Asn Lys Asn Gln Lys Leu Gly Ser Ser Ser Thr Ser Ile Pro
 1380 1385 1390
 His Leu Ser Ser Pro Pro Thr Lys Phe Phe Val Ser Thr Pro Ser Gln
 1395 1400 1405
 Pro Ser Cys Lys Ser His Leu Glu Thr Gly Thr Lys Asp Gln Glu Thr
 1410 1415 1420
 Val Cys Ser Lys Ala Thr Glu Gly Asp Asn Thr Glu Phe Gly Ala Phe
 1425 1430 1435 1440
 Val Gly His Arg Asp Ser Met Asp Leu Gln Arg Phe Lys Glu Thr Ser
 1445 1450 1455
 Asn Lys Ile Lys Ile Leu Ser Asn Asn Asn Thr Ser Glu Asn Thr Leu
 1460 1465 1470
 Lys Arg Val Ser Ser Leu Ala Gly Phe Thr Asp Cys His Arg Thr Ser
 1475 1480 1485
 Ile Pro Val His Ser Lys Gln Ala Glu Lys Ile Ser Arg Arg Pro Ser
 1490 1495 1500
 Thr Glu Asp Thr His Glu Val Asp Ser Lys Ala Ala Leu Ile Pro Asp
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 Trp Leu Gln Asp Arg Pro Ser Asn Arg Glu Met Pro Ser Glu Glu Gly
 1525 1530 1535
 Thr Leu Asn Gly Leu Thr Ser Pro Phe Lys Pro Ala Met Asp Thr Asn
 1540 1545 1550
 Tyr Tyr Tyr Ser Ala Val Glu Arg Asn Asn Leu Met Arg Leu Ser Gln
 1555 1560 1565
 Ser Ile Pro Phe Thr Pro Val Pro Pro Arg Gly Glu Pro Val Thr Val
 1570 1575 1580
 Tyr Arg Leu Glu Glu Ser Ser Pro Asn Ile Leu Asn Asn Ser Met Ser
 1585 1590 1595 1600
 Ser Trp Ser Gln Leu Gly Leu Cys Ala Lys Ile Glu Phe Leu Ser Lys
 1605 1610 1615
 Glu Glu Met Gly Gly Gly Leu Arg Arg Ala Val Lys Val Gln Cys Thr
 1620 1625 1630
 Trp Ser Glu His Asp Ile Leu Lys Ser Gly His Leu Tyr Ile Ile Lys
 1635 1640 1645
 Ser Phe Leu Pro Glu Val Val Asn Thr Trp Ser Ser Ile Tyr Lys Glu
 1650 1655 1660
 Asp Thr Val Leu His Leu Cys Leu Arg Glu Ile Gln Gln Gln Arg Ala
 1665 1670 1675 1680
 Ala Gln Lys Leu Thr Phe Ala Phe Asn Gln Met Lys Pro Lys Ser Ile
 1685 1690 1695
 Pro Tyr Ser Pro Arg Phe Leu Glu Val Phe Leu Leu Tyr Cys His Ser
 1700 1705 1710
 Ala Gly Gln Trp Phe Ala Val Glu Glu Cys Met Thr Gly Glu Phe Arg
 1715 1720 1725
 Lys Tyr Asn Asn Asn Asn Gly Asp Glu Ile Ile Pro Thr Asn Thr Leu
 1730 1735 1740
 Glu Glu Ile Met Leu Ala Phe Ser His Trp Thr Tyr Glu Tyr Thr Arg
 1745 1750 1755 1760
 Gly Glu Leu Leu Val Leu Asp Leu Gln Gly Val Gly Glu Asn Leu Thr
 1765 1770 1775
 Asp Pro Ser Val Ile Lys Ala Glu Glu Lys Arg Ser Cys Asp Met Val
 1780 1785 1790
 Phe Gly Pro Ala Asn Leu Gly Glu Asp Ala Ile Lys Asn Phe Arg Ala
 1795 1800 1805

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Lys His His Cys Asn Ser Cys Cys Arg Lys Leu Lys Leu Pro Asp Leu
 1810 1815 1820
 Lys Arg Asn Asp Tyr Thr Pro Asp Lys Ile Ile Phe Pro Gln Asp Glu
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 <211> 1214
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 <213> Homo Sapiens

<400> 30

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Thr	Leu	Cys	Gln	Cys	Gly	Arg	Pro	Arg	Thr	Ala	His	Pro	Ala	Val	Ala
		35					40					45			
Met	Glu	Asp	Ala	Phe	Gly	Ala	Ala	Val	Val	Thr	Val	Trp	Asp	Ser	Asp
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Ala	His	Thr	Thr	Glu	Lys	Pro	Thr	Asp	Ala	Tyr	Gly	Glu	Leu	Asp	Phe
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Thr	Gly	Ala	Gly	Arg	Lys	His	Ser	Asn	Phe	Leu	Arg	Leu	Ser	Asp	Arg
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Thr	Asp	Pro	Ala	Ala	Val	Tyr	Ser	Leu	Val	Thr	Arg	Thr	Trp	Gly	Phe
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Arg	Ala	Pro	Asn	Leu	Val	Val	Ser	Val	Leu	Gly	Gly	Ser	Gly	Gly	Pro
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Ala	Ala	Gln	Ser	Thr	Gly	Ala	Trp	Ile	Val	Thr	Gly	Gly	Leu	His	Thr
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Gly	Ile	Gly	Arg	His	Val	Gly	Val	Ala	Val	Arg	Asp	His	Gln	Met	Ala
				165					170					175	
Ser	Thr	Gly	Gly	Thr	Lys	Val	Val	Ala	Met	Gly	Val	Ala	Pro	Trp	Gly
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Val	Val	Arg	Asn	Arg	Asp	Thr	Leu	Ile	Asn	Pro	Lys	Gly	Ser	Phe	Pro
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Ala	Arg	Tyr	Arg	Trp	Arg	Gly	Asp	Pro	Glu	Asp	Gly	Val	Gln	Phe	Pro
		210				215					220				
Leu	Asp	Tyr	Asn	Tyr	Ser	Ala	Phe	Phe	Leu	Val	Asp	Asp	Gly	Thr	His
225					230					235					240

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Gly	Cys	Leu	Gly	Gly	Glu	Asn	Arg	Phe	Arg	Leu	Arg	Leu	Glu	Ser	Tyr	
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Ile	Ser	Gln	Gln	Lys	Thr	Gly	Val	Gly	Gly	Thr	Gly	Ile	Asp	Ile	Pro	
			260					265					270			
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		275					280					285				
Glu	Asn	Ala	Thr	Gln	Ala	Gln	Leu	Pro	Cys	Leu	Leu	Val	Ala	Gly	Ser	
	290					295				300						
Gly	Gly	Ala	Ala	Asp	Cys	Leu	Ala	Glu	Thr	Leu	Glu	Asp	Thr	Leu	Ala	
305					310					315					320	
Pro	Gly	Ser	Gly	Gly	Ala	Arg	Gln	Gly	Glu	Ala	Arg	Asp	Arg	Ile	Arg	
			325					330						335		
Arg	Phe	Phe	Pro	Lys	Gly	Asp	Leu	Glu	Val	Leu	Gln	Ala	Gln	Val	Glu	
			340					345					350			
Arg	Ile	Met	Thr	Arg	Lys	Glu	Leu	Leu	Thr	Val	Tyr	Ser	Ser	Glu	Asp	
	355					360						365				
Gly	Ser	Glu	Glu	Phe	Glu	Thr	Ile	Val	Leu	Lys	Ala	Leu	Val	Lys	Ala	
370						375					380					
Cys	Gly	Ser	Ser	Glu	Ala	Ser	Ala	Tyr	Leu	Asp	Glu	Leu	Arg	Leu	Ala	
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Val	Ala	Trp	Asn	Arg	Val	Asp	Ile	Ala	Gln	Ser	Glu	Leu	Phe	Arg	Gly	
			405					410						415		
Asp	Ile	Gln	Trp	Arg	Ser	Phe	His	Leu	Glu	Ala	Ser	Leu	Met	Asp	Ala	
			420					425					430			
Leu	Leu	Asn	Asp	Arg	Pro	Glu	Phe	Val	Arg	Leu	Leu	Ile	Ser	His	Gly	
	435					440						445				
Leu	Ser	Leu	Gly	His	Phe	Leu	Thr	Pro	Met	Arg	Leu	Ala	Gln	Leu	Tyr	
	450				455					460						
Ser	Ala	Ala	Pro	Ser	Asn	Ser	Leu	Ile	Arg	Asn	Leu	Leu	Asp	Gln	Ala	
465					470					475					480	
Ser	His	Ser	Ala	Gly	Thr	Lys	Ala	Pro	Ala	Leu	Lys	Gly	Gly	Ala	Ala	
			485					490						495		
Glu	Leu	Arg	Pro	Pro	Asp	Val	Gly	His	Val	Leu	Arg	Met	Leu	Leu	Gly	
			500					505					510			
Lys	Met	Cys	Ala	Pro	Arg	Tyr	Pro	Ser	Gly	Gly	Ala	Trp	Asp	Pro	His	
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Pro	Gly	Gln	Gly	Phe	Gly	Glu	Ser	Met	Tyr	Leu	Leu	Ser	Asp	Lys	Ala	
	530					535						540				
Thr	Ser	Pro	Leu	Ser	Leu	Asp	Ala	Gly	Leu	Gly	Gln	Ala	Pro	Trp	Ser	
545					550					555					560	
Asp	Leu	Leu	Leu	Trp	Ala	Leu	Leu	Leu	Asn	Arg	Ala	Gln	Met	Ala	Met	
			565					570						575		
Tyr	Phe	Trp	Glu	Met	Gly	Ser	Asn	Ala	Val	Ser	Ser	Ala	Leu	Gly	Ala	
			580					585					590			
Cys	Leu	Leu	Leu	Arg	Val	Met	Ala	Arg	Leu	Glu	Pro	Asp	Ala	Glu	Glu	
	595					600						605				
Ala	Ala	Arg	Arg	Lys	Asp	Leu	Ala	Phe	Lys	Phe	Glu	Gly	Met	Gly	Val	
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Asp	Leu	Phe	Gly	Glu	Cys	Tyr	Arg	Ser	Ser	Glu	Val	Arg	Ala	Ala	Arg	
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Leu	Ala	Met	Gln	Ala	Asp	Ala	Arg	Ala	Phe	Phe	Ala	Gln	Asp	Gly	Val	
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Gln	Ser	Leu	Leu	Thr	Gln	Lys	Trp	Trp	Gly	Asp	Met	Ala	Ser	Thr	Thr	
	675						680						685			
Pro	Ile	Trp	Ala	Leu	Val	Leu	Ala	Phe	Phe	Cys	Pro	Pro	Leu	Ile	Tyr	
	690					695					700					
Thr	Arg	Leu	Ile	Thr	Phe	Arg	Lys	Ser	Glu	Glu	Glu	Pro	Thr	Arg	Glu	
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Glu	Leu	Glu	Phe	Asp	Met	Asp	Ser	Val	Ile	Asn	Gly	Glu	Gly	Pro	Val
				725					730					735	
Gly	Thr	Ala	Asp	Pro	Ala	Glu	Lys	Thr	Pro	Leu	Gly	Val	Pro	Arg	Gln
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Ser	Gly	Arg	Pro	Gly	Cys	Cys	Gly	Gly	Arg	Cys	Gly	Gly	Arg	Arg	Cys
		755					760					765			
Leu	Arg	Arg	Trp	Phe	His	Phe	Trp	Gly	Ala	Pro	Val	Thr	Ile	Phe	Met
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Gly	Asn	Val	Val	Ser	Tyr	Leu	Leu	Phe	Leu	Leu	Leu	Phe	Ser	Arg	Val
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Leu	Leu	Val	Asp	Phe	Gln	Pro	Ala	Pro	Pro	Gly	Ser	Leu	Glu	Leu	Leu
			805					810					815		
Leu	Tyr	Phe	Trp	Ala	Phe	Thr	Leu	Leu	Cys	Glu	Glu	Leu	Arg	Gln	Gly
			820				825						830		
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		835					840					845			
His	Ala	Ser	Leu	Ser	Gln	Arg	Leu	Arg	Leu	Tyr	Leu	Ala	Asp	Ser	Trp
	850					855				860					
Asn	Gln	Cys	Asp	Leu	Val	Ala	Leu	Thr	Cys	Phe	Leu	Leu	Gly	Val	Gly
865				870					875						880
Cys	Arg	Leu	Thr	Pro	Gly	Leu	Tyr	His	Leu	Gly	Arg	Thr	Val	Leu	Cys
			885					890						895	
Ile	Asp	Phe	Met	Val	Phe	Thr	Val	Arg	Leu	Leu	His	Ile	Phe	Thr	Val
			900					905					910		
Asn	Lys	Gln	Leu	Gly	Pro	Lys	Ile	Val	Ile	Val	Ser	Lys	Met	Met	Lys
	915						920					925			
Asp	Val	Phe	Phe	Phe	Leu	Phe	Phe	Leu	Gly	Val	Trp	Leu	Val	Ala	Tyr
	930					935					940				
Gly	Val	Ala	Thr	Glu	Gly	Leu	Leu	Arg	Pro	Arg	Asp	Ser	Asp	Phe	Pro
945				950					955						960
Ser	Ile	Leu	Arg	Arg	Val	Phe	Tyr	Arg	Pro	Tyr	Leu	Gln	Ile	Phe	Gly
			965					970						975	
Gln	Ile	Pro	Gln	Glu	Asp	Met	Asp	Val	Ala	Leu	Met	Glu	His	Ser	Asn
			980					985					990		
Cys	Ser	Ser	Glu	Pro	Gly	Phe	Trp	Ala	His	Pro	Pro	Gly	Ala	Gln	Ala
		995					1000					1005			
Gly	Thr	Cys	Val	Ser	Gln	Tyr	Ala	Asn	Trp	Leu	Val	Val	Leu	Leu	Leu
	1010					1015					1020				
Val	Ile	Phe	Leu	Leu	Val	Ala	Asn	Ile	Leu	Leu	Val	Val	Asn	Leu	Ile
1025					1030					1035					1040
Ala	Met	Phe	Ser	Tyr	Thr	Phe	Gly	Lys	Val	Gln	Gly	Asn	Ser	Asp	Leu
			1045					1050						1055	
Tyr	Trp	Lys	Ala	Gln	Arg	Tyr	Arg	Leu	Ile	Arg	Glu	Phe	His	Ser	Arg
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 <211> 4646
 <212> DNA
 <213> Homo Sapiens

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<211> 1104

<212> PRT

<213> Homo Sapiens

<400> 32

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Thr	Leu	Asp	Ser	Thr	Arg	Thr	Leu	Tyr	Ser	Ser	Ala	Ser	Arg	Ser	Thr
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Asp	Leu	Ser	Tyr	Ser	Glu	Ser	Asp	Leu	Val	Asn	Phe	Ile	Gln	Ala	Asn
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Phe	Lys	Lys	Arg	Glu	Cys	Val	Phe	Phe	Thr	Lys	Asp	Ser	Lys	Ala	Thr
	50					55					60				
Glu	Asn	Val	Cys	Lys	Cys	Gly	Tyr	Ala	Gln	Ser	Gln	His	Met	Glu	Gly
65						70				75				80	
Thr	Gln	Ile	Asn	Gln	Ser	Glu	Lys	Trp	Asn	Tyr	Lys	Lys	His	Thr	Lys
				85					90					95	
Glu	Phe	Pro	Thr	Asp	Ala	Phe	Gly	Asp	Ile	Gln	Phe	Glu	Thr	Leu	Gly
			100					105						110	
Lys	Lys	Gly	Lys	Tyr	Ile	Arg	Leu	Ser	Cys	Asp	Thr	Asp	Ala	Glu	Ile
		115					120					125			
Leu	Tyr	Glu	Leu	Leu	Thr	Gln	His	Trp	His	Leu	Lys	Thr	Pro	Asn	Leu
	130					135					140				
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145					150					155				160	
Met	Arg	Lys	Ile	Phe	Ser	Arg	Leu	Ile	Tyr	Ile	Ala	Gln	Ser	Lys	Gly
				165					170					175	
Ala	Trp	Ile	Leu	Thr	Gly	Gly	Thr	His	Tyr	Gly	Leu	Met	Lys	Tyr	Ile
			180					185						190	
Gly	Glu	Val	Val	Arg	Asp	Asn	Thr	Ile	Ser	Arg	Ser	Ser	Glu	Glu	Asn
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Ile	Val	Ala	Ile	Gly	Ile	Ala	Ala	Trp	Gly	Met	Val	Ser	Asn	Arg	Asp
210						215				220					
Thr	Leu	Ile	Arg	Asn	Cys	Asp	Ala	Glu	Gly	Tyr	Phe	Leu	Ala	Gln	Tyr
225				230						235					240
Leu	Met	Asp	Asp	Phe	Thr	Arg	Asp	Pro	Leu	Cys	Ile	Leu	Asp	Asn	Asn
			245						250					255	
His	Thr	His	Leu	Leu	Leu	Val	Asp	Asn	Gly	Cys	His	Gly	His	Pro	Thr
			260				265						270		
Val	Glu	Ala	Lys	Leu	Arg	Asn	Gln	Leu	Glu	Lys	Tyr	Ile	Ser	Glu	Arg
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Thr	Ile	Gln	Asp	Ser	Asn	Tyr	Gly	Gly	Lys	Ile	Pro	Ile	Val	Cys	Phe
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Ala	Gln	Gly	Gly	Gly	Lys	Glu	Thr	Leu	Lys	Ala	Ile	Asn	Thr	Ser	Ile
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Lys	Asn	Lys	Ile	Pro	Cys	Val	Val	Val	Glu	Gly	Ser	Gly	Gln	Ile	Ala
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Asp	Glu	Ile	Val	Ser	Asn	Ala	Ile	Ser	Tyr	Ala	Leu	Tyr	Lys	Ala	Phe
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Ser	Thr	Ser	Glu	Gln	Asp	Lys	Asp	Asn	Trp	Asn	Gly	Gln	Leu	Lys	Leu
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Leu	Gln	Ala	Leu	Phe	Ile	Trp	Ala	Ile	Leu	Gln	Asn	Lys	Lys	Glu	Leu
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Ser	Lys	Val	Ile	Trp	Glu	Gln	Thr	Arg	Gly	Cys	Thr	Leu	Ala	Ala	Leu
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Asn	Ala	Ala	Gly	Glu	Ser	Glu	Glu	Leu	Ala	Asn	Glu	Tyr	Glu	Thr	Arg
		610					615					620			
Ala	Val	Glu	Leu	Phe	Thr	Glu	Cys	Tyr	Ser	Ser	Asp	Glu	Asp	Leu	Ala
625					630					635					640
Glu	Gln	Leu	Leu	Val	Tyr	Ser	Cys	Glu	Ala	Trp	Gly	Gly	Ser	Asn	Cys
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Leu	Glu	Leu	Ala	Val	Glu	Ala	Thr	Asp	Gln	His	Phe	Ile	Ala	Gln	Pro
			660					665					670		
Gly	Val	Gln	Asn	Phe	Leu	Ser	Lys	Gln	Trp	Tyr	Gly	Glu	Ile	Ser	Arg
		675					680					685			

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Asp Thr Lys Asn Trp Lys Ile Ile Leu Cys Leu Phe Ile Ile Pro Leu
 690 695 700
 Val Gly Cys Gly Phe Val Ser Phe Arg Lys Lys Pro Val Asp Lys His
 705 710 715 720
 Lys Lys Leu Leu Trp Tyr Tyr Val Ala Phe Phe Thr Ser Pro Phe Val
 725 730 735
 Val Phe Ser Trp Asn Val Val Phe Tyr Ile Ala Phe Leu Leu Leu Phe
 740 745 750
 Ala Tyr Val Leu Leu Met Asp Phe His Ser Val Pro His Pro Pro Glu
 755 760 765
 Leu Val Leu Tyr Ser Leu Val Phe Val Leu Phe Cys Asp Glu Val Arg
 770 775 780
 Gln Trp Tyr Val Asn Gly Val Asn Tyr Phe Thr Asp Leu Trp Asn Val
 785 790 795 800
 Met Asp Thr Leu Gly Leu Phe Tyr Phe Ile Ala Gly Ile Val Phe Arg
 805 810 815
 Leu His Ser Ser Asn Lys Ser Ser Leu Tyr Ser Gly Arg Val Ile Phe
 820 825 830
 Cys Leu Asp Tyr Ile Ile Phe Thr Leu Arg Leu Ile His Ile Phe Thr
 835 840 845
 Val Ser Arg Asn Leu Gly Pro Lys Ile Ile Met Leu Gln Arg Met Leu
 850 855 860
 Ile Asp Val Phe Phe Phe Leu Phe Leu Phe Ala Val Trp Met Val Ala
 865 870 875 880
 Phe Gly Val Ala Arg Gln Gly Ile Leu Arg Gln Asn Glu Gln Arg Trp
 885 890 895
 Arg Trp Ile Phe Arg Ser Val Ile Tyr Glu Pro Tyr Leu Ala Met Phe
 900 905 910
 Gly Gln Val Pro Ser Asp Val Asp Gly Thr Thr Tyr Asp Phe Ala His
 915 920 925
 Cys Thr Phe Thr Gly Asn Glu Ser Lys Pro Leu Cys Val Glu Leu Asp
 930 935 940
 Glu His Asn Leu Pro Arg Phe Pro Glu Trp Ile Thr Ile Pro Leu Val
 945 950 955 960
 Cys Ile Tyr Met Leu Ser Thr Asn Ile Leu Leu Val Asn Leu Leu Val
 965 970 975
 Ala Met Phe Gly Tyr Thr Val Gly Thr Val Gln Glu Asn Asn Asp Gln
 980 985 990
 Val Trp Lys Phe Gln Arg Tyr Phe Leu Val Gln Glu Tyr Cys Ser Arg
 995 1000 1005
 Leu Asn Ile Pro Phe Pro Phe Ile Val Phe Ala Tyr Phe Tyr Met Val
 1010 1015 1020
 Val Lys Lys Cys Phe Lys Cys Cys Cys Lys Glu Lys Asn Met Glu Ser
 1025 1030 1035 104
 Ser Val Cys Cys Phe Lys Asn Glu Asp Asn Glu Thr Leu Ala Trp Glu
 1045 1050 1055
 Gly Val Met Lys Glu Asn Tyr Leu Val Lys Ile Asn Thr Lys Ala Asn
 1060 1065 1070
 Asp Thr Ser Glu Glu Met Arg His Arg Phe Arg Gln Leu Asp Thr Lys
 1075 1080 1085
 Leu Asn Asp Leu Lys Gly Leu Leu Lys Glu Ile Ala Asn Lys Ile Lys
 1090 1095 1100

sub B'
 cont.